

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An apparatus using vapor phase deposition comprising:
a deposition part, which comprises:
a process chamber;
a substrate holder installed in the process chamber for supporting a loaded substrate;
a substrate temperature controller installed in the substrate holder for controlling the temperature of the substrate; and
a shower head installed opposite the substrate holder in the process chamber to uniformly distribute organic source vapors to be used for a deposition reaction onto the substrate;
and
a source part, which comprises:
a source chamber for generating organic source vapors to be supplied to the shower head;
a transfer gas supply source for supplying transfer gas that is used to transfer organic source vapors to the process chamber;
a source heater which surrounds the source chamber and allows organic materials to evaporate to be organic source vapors in the source chamber;
a transfer gas distributor installed in the source chamber, wherein the transfer gas distributor is a conic block or a conic plate having an outer inclined surface facing an inner surface of the source chamber, with an apex of the outer inclined surface ~~connected to~~ in direct contact with a rear end of a transfer gas transfer line, and wherein the transfer gas distributor is formed such that the transfer gas cannot be transmitted therethrough and the transfer gas is distributed widely along the outer inclined surface of the conic block or the conic plate;
a diluted gas supply source, from which diluted gas is supplied to combine with the transfer gas before the transfer gas enters the process chamber in order to control pressure of the process chamber; and
the transfer gas transfer line having an elongated shape that longitudinally extends from the transfer gas supply source into the source chamber to ~~connect to form a direct contact~~ with the apex of the outer inclined surface of the transfer gas distributor, a circumference of the

rear end of the transfer gas transfer line including a transfer gas inlet, which is formed by a first plurality of holes to allow the transfer gas to enter the source chamber for distribution by the transfer gas distributor; and

an organic source vapor transfer line extended from inside the source chamber to the shower head, a front end of the organic source vapor transfer line extended into the source chamber and including an organic source vapor outlet, the organic source vapor outlet formed by a second plurality of holes, the second plurality of holes to allow the organic source vapors distributed by the transfer gas distributor to exit the source chamber.

2. (Previously Presented) The apparatus of claim 1, further comprising a shower curtain, which is installed between the shower head and the substrate holder to surround the substrate holder.

3. (Cancelled)

4. (Previously Presented) The apparatus of claim 1, wherein the transfer gas distributor distributes source gas fed from the transfer gas inlet.

5. (Cancelled)

6. (Original) The apparatus of claim 1, wherein the source heater is expanded to surround the organic source vapor transfer line.

7. (Cancelled)

8. (Original) The apparatus of claim 1, further comprising a regulator for controlling the flow rate and speed of fluids fed into the process chamber.

9. (Original) The apparatus of claim 1, comprising a plurality of source chambers for generating different types of organic source vapors and further comprising:

a plurality of transfer lines, which are installed to allow different organic vapors to sequentially enter the process chamber or bypass using time-division; and
a plurality of valves, which are installed to use the transfer lines by time-division.

10. (Previously Presented) The apparatus of claim 9, wherein the source heater is expanded to heat the transfer lines and the valves.

11. (Currently Amended) A method using organic vapor phase deposition comprising:

generating first organic source vapors by heating a source chamber containing a first organic source material;

delivering a transfer gas, which is supplied from a transfer gas supply source, into the source chamber via a transfer gas inlet of a transfer gas transfer line, wherein the transfer gas is distributed to the source chamber by a transfer gas distributor installed in the source chamber, wherein the transfer gas distributor is a conic block or a conic plate having an outer inclined surface facing an inner surface of the source chamber, with an apex of the outer inclined surface ~~connected to~~ in direct contact with a rear end of the transfer gas transfer line, and wherein the transfer gas distributor is formed such that the transfer gas cannot be transmitted therethrough and the transfer gas is distributed widely along the outer inclined surface of the conic block or the conic plate the transfer gas;

transferring the first organic source vapors by the transfer gas, via an organic source vapor transfer line, from the source chamber to a shower head of a process chamber;

combining diluted gas with the transfer gas before the transfer gas enters the process chamber in order to control pressure of the process chamber;

causing a deposition reaction by distributing the first organic source vapors transferred via the shower head onto a substrate that is loaded at a position opposite the shower head; and

purging the process chamber after the vapor deposition is completed,

wherein the transfer gas enters the source chamber through the transfer gas inlet, the transfer gas inlet including a first plurality of holes formed at a circumference of the rear end of the transfer gas transfer line, the transfer gas transfer line having an elongated shape that longitudinally extends into the source chamber to ~~connect to~~ form a direct contact with the apex

of the outer inclined surface of the transfer gas distributor, and the transfer gas exits the source chamber through an organic source vapor outlet formed by a second plurality of holes at a front end of the organic source vapor transfer line that extends into the source chamber.

12. (Original) The method of claim 11, further comprising sequentially repeating causing a deposition reaction and purging the process chamber.

13. (Previously Presented) The method of claim 11, to form multi-component organic thin films, further comprising:

forming second organic source vapors by heating an additional source chamber containing a second organic material;

transferring the second organic source vapors via another transfer line, which is maintained at a constant temperature to prevent condensation of the second organic source vapors, to the shower head of the process chamber;

causing a second deposition reaction by distributing the second organic source vapors transferred via the shower head onto the substrate that is loaded at a position opposite the shower head; and

second-purging the process chamber after the second vapor deposition is conducted on the substrate.

14. (Currently Amended) The method of claim 13, wherein the first organic source vapors and the second organic source vapors are alternately supplied to the process chamber using time-division by about 0.01 second to ~~several~~ a plurality of hours.